

work while isolated from the external environment can utilize schedules of bright and subdued light, designed in accordance with the methods herein, to improve the health and the sleep hygiene of their occupants.

As stated above, there are several potential uses of this invention, namely to help shift workers adapt to variable work schedules, reduce jet lag, and treat patients with a variety of medical disorders. Specifically, factories, hospitals and utilities which operate around the clock could install overhead fixtures with sufficient lighting capacity to employ this new process to facilitate adaptation of the workers to their persistently changing work schedules. In wintertime, the indoor lights could be used to provide heat for the facilities.

In addition, the process could be used by several components of the travel industry. With development of proper hardware, international air carriers could initiate a special class of service providing facilities for passengers to be exposed to amplified or reduced lighting at times designed to aid in their adaptation to their destination time zone. Airport and other hotels catering to the international business traveler could have sun-light simulator suites where guests could be exposed to lights prior to or after a trip. Finally, with appropriate miniaturization, it may be possible for consumers to purchase "sunglasses" which would actually emit light such that the retina would be exposed to the intensity of light required to achieve the desired effect.

Patients with medical disorders could use home appliances for exposure to the lights at a specific time of day. This could be conducted in conjunction with a diagnostic procedure before and/or after the administration of the phototherapy. Patients likely to benefit would include those with delayed, advanced, or hypernycthemeral sleep syndromes, and potentially patients with psychiatric disorders.

8. Conclusion

Whereas various particular embodiments of the present invention have been disclosed in detail above, it is to be understood that they are presented by way of example, and not limitation. Thus, the full scope and import of the present invention should not be limited by any of the embodiments described above, but should be defined only in accordance with the following claims.

What is claimed is:

1. A method of modifying a human subject's endogenous circadian cycle to a desired state, comprising the steps of:
 - determining the characteristics of a desired endogenous circadian cycle for said subject;
 - selecting an appropriate time with respect to the presumed phase of physiological markers of the present endogenous circadian cycle for said subject during which to apply a light stimulus to effect a desired modification of said present endogenous circadian cycle of said subject; and
 - applying said light stimulus at said selected appropriate time to achieve said desired endogenous circadian cycle for said subject.
2. The method of claim 1 wherein said light stimulus is enhanced illumination.
3. The method of claim 1 wherein said light stimulus includes diminished illumination.
4. The method of claim 1 wherein said light stimulus includes ambient light.

5. The method of claim 1 wherein said stimulus includes a combination of enhanced illumination and diminished illumination.

6. The method of claim 1 further comprising the step of:

assessing the characteristics of the present endogenous circadian cycle of said subject, and wherein said appropriate time is selected based on said desired characteristics.

7. The method of claim 1 wherein said light stimulus includes light of an intensity greater than 2000 lux.

8. The method of claim 7 wherein said light intensity is inferred at a position approximately at the pupil of said subject.

9. The method of claim 1 wherein said light stimulus includes light of an intensity between zero and 100,000 lux.

10. The method of claim 9 wherein said intensity is inferred at a position approximately at the pupil of said subject.

11. A method of facilitating the physiological adaptation of a human subject to a reoccurring activity/rest-leisure schedule requiring said subject to be active during a portion of conventional sleep hours, comprising the steps of:

selecting a substantial episode of time during the activity portion of said subject's activity/rest schedule to apply a light stimulus; and
applying, at said selected time episode, said light stimulus consisting of an episode of enhanced illumination;

whereby the physiological adaptation of said subject to a reoccurring activity/rest schedule requiring said subject to be active during a portion of said conventional sleep hours is facilitated.

12. The method of claim 11 wherein the selection of said time is based on a determination of the characteristics of a desired sleep time for said subject.

13. The method of claim 11 wherein the selection of said time is based on a determination of the characteristics of a desired wake time for said subject.

14. The method of claim 11 wherein said selected time occurs between the hours of 11:30 p.m. and 7:30 a.m.

15. The method of claim 11 wherein said selected time occurs during the entire activity portion of said subject's schedule.

16. The method of claim 11 further comprising the step of:

exposing said subject to an ambient level of illumination during a second selected time of the activity portion of said subject's schedule.

17. The method of claim 11 further comprising the step of:

providing said subject with appropriate equipment to enable said subject to diminish the level of illumination to which they are exposed during the rest-leisure portion of said subject's schedule.

18. The method of claim 11 wherein said enhanced illumination is light having an intensity greater than 2000 lux.

19. The method of claim 18 wherein said intensity is inferred at a position approximately at the pupil of the subject.

20. A method of facilitating the physiological adaptation of a human subject to an activity/rest schedule requiring said subject to be active during a portion of the conventional sleep hours by modifying said sub-